

CLAIMS:

1. A pneumatic connector for a horse and trailer comprises a connector element and a kingpin characterised in that the connector element includes inlets for permanent air supply and service line air, the connector element includes passages for separately
5 conveying the two air supplies to the base of the kingpin, the kingpin includes passages for separately conveying the air to outlets for distribution to the trailer pneumatic system, the connector element being movable between a first or disengaged position in which the horse and trailer are unhitched, and a second or engaged position in which the horse and trailer are hitched, the movement of the connector element being initiated by the hitching
10 action.
2. A pneumatic connector according to claim 1 characterised in that the connector element comprises a piston movable within a housing. the piston including vertically spaced apart inlet ports leading to discrete vertical passages within the piston.
3. A pneumatic connector according to claim 2 characterised in that the housing
15 includes inner connector elements for discretely transferring air from the two inlets to the piston inlet ports.
4. A pneumatic connector according to claim 3 characterised in that the piston comprises a pneumatically driven double action piston.
5. A pneumatic connector according to claim 3 characterised in that the piston further
20 includes a pair of spaced apart annular grooves defining a channel therearound, in which the piston ports are located.

6. A pneumatic connector according to claim 5 characterised in that ten ports are provided in the upper groove and four in the lower groove.
7. A pneumatic connector according to claim 2 characterised in that two sets of passages are provided in the piston, the first being a single central passage extending from
5 a piston inlet port to the top of the piston and the second set comprising a plurality of passages concentrically arranged about the central passage also exiting the top of the piston.
8. A pneumatic connector according to claim 7 characterised in that ten passages are arranged about the central passages.
- 10 9. A pneumatic connector according to claim 7 characterised in that the concentric passages convey the permanent air supply with the central passage conveying the service air supply.
10. A pneumatic connector according to claim 3 characterised in that the piston comprises an elongate stainless steel element and a ram of greater diameter at the base
15 thereof.
11. A pneumatic connector according to claim 3 characterised in that the inner connector elements comprise elongated cylindrical bushes having a central bore in which the piston is slidable, and including at the upper and lower ends thereof, flanges defining a channel between them and about the cylindrical bodies of the bushes, the channels
20 including one or more ports extending into the central bore, providing a passage for the air from the inlets to the discrete passages within the piston.

12. A pneumatic connector according to claim 11 characterised in that the separation between the air supplies is maintained by a bush locatable between the two elongated cylindrical bushes and a series of O-rings and pneumatic seals locatable between the bushes and the piston, and the bushes and the housing.
- 5 13. A pneumatic connector according to claim 1 characterised in that the kingpin is dimensioned to conform with the dimensions of existing kingpins.
14. A pneumatic connector according to claim 1 characterised in that the base of the kingpin is adapted to engage the top of the piston, with the base of the kingpin including a series of bushes and pneumatic seals to firstly prevent mixing of the air from the two sets
10 of passages and secondly to direct the air exiting the piston into the appropriate passages in the kingpin.
15. A pneumatic connector according to claim 1 characterised in that the kingpin includes a single central passage dimensioned to register with the central passage of the piston, and five concentric passages located therearound, the central passage exiting the
15 kingpin near the top thereof via three horizontally disposed ports and the concentric passages exiting via five similar horizontal ports located a short distance therebelow.
16. A pneumatic connector according to claim 1 characterised in that the kingpin includes five concentric passages exiting via five horizontal ports.
17. A pneumatic connector according to claim 15 characterised in that the upper
20 kingpin exit ports connect the service air supply to the service pneumatic system of the trailer with the lower exit ports connecting the permanent air supply to the permanent air system of the trailer.

18. A pneumatic connector according to claim 15 fitted as original equipment characterised in that the kingpin exit ports engage a banjo coupling which comprises a modified mounting block of the kingpin, for distribution to the trailer pneumatic system.
19. A pneumatic connector according to claim 15 retro-fitted to an existing 5th wheel
5 arrangement characterised in that a banjo is fitted over the top of the kingpin with the kingpin exit ports being located at the top of the kingpin.
20. A pneumatic connector according to claim 1 characterised in that the kingpin comprises high tensile, high sheet strength steel.
21. A pneumatic connector according to claim 11 characterised in that the housing is
10 divided into upper and lower sections by the piston bushes, seals and O-rings, the lower section including upper and lower ports to enable air from the horse to drive the piston upwards, upon engagement of the horse and trailer, and downwards upon disengagement, the lower section of the housing is being divided into two compartments by an O-ring or the like pneumatic seal located between the ports.
- 15 22. A pneumatic connector according to claim 21 characterised in that the O-ring is located between the inner wall of the housing and a sleeve extending from the base of the housing to the top of the lower section, the sleeve including castellations at the top and bottom thereof to permit passage of air into and out of the compartments.
23. A pneumatic connector according to claim 21 characterised in that the passage of
20 air through the housing ports is controlled by a 5/2-way trigger valve.